Calculus Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Final

Evaluate the following.

1.  2. 

3. Find an equation of the tangent line to the graph of  at the point (0, -1)

4. Describe at least two situations when a function is not differentiable. Provide a graph if necessary.

Find the derivative.

5.  6. 

7.  8. 

9.  10. 

11.  12. 

13.  14. 

15.  16. 

Differentiate with respect to x and solve for y’

17. 

18-22. For the graph of find the critical points, inflection points, concavity, extreme values, and the y-intercept.

Integrate the following.

23.  24. 

25.  26. 

Evaluate the integral.

27.  28. 

29.  30. 

31.  32. 

Use the disk or washer method to find the volume.

33.  about the x-axis

34.  about the y-axis

35. Consider the differential equation on the axes provided, sketch a slope field for the given differential equation at the nine points indicated.



36. There are 700 people in line for a popular amusement-park ride when the ride begins operation in the morning.

Once it begins operation, the ride accepts passengers until the park closes 8 hours later.

While there is a line,

people move onto the ride at a rate of 800 people per hour. The graph shows the rate, *r*(*t*), at which people arrive at the ride throughout the day. Time *t* is measured in hours from the time the ride begins

operation.

How many people arrive at the ride between *t* = 0 and *t* = 3 ?

37. Is the number of people waiting in line to get on the ride increasing or decreasing between *t* = 2 and *t* = 3 ? Justify your answer.

38. At what time *t* is the line for the ride the longest? How many people are in line at that time? Justify your answers.

39. If you could use your book to look up one concept right now, which one would it be?

40. What is one thing that you learned in Calculus that you don’t think you will ever forget?

41. Where you successful in this class?

42. What could I have done better?

43. Did you learn anything as a result of taking this test?